REMARKS

Claims in the Case

Claims 3, 12 and 20 are being amended. Claims 3-26 are currently pending in the case.

Issued Patents in Cases with Related Subject Matter

In Information Disclosure Statements filed in the parent cases, Applicant has previously identified a number of applications that are related in subject matter. It is noted that the following are patents that have now issued with respect to these cases: U.S. 6,137,372; U.S. 6,147,567; U.S. 6,150,891; U.S. 6,167,245 (grandparent to this case); U.S. 6,233,441; U.S. 6,226,506; U.S. 6,304,146; U.S. 6,308,055; U.S. 6,311,050; U.S. 6,317,006; U.S. 6,327,463; U.S. 6,549,764; U.S. 6,483,390; U.S. 6,549,765; U.S. 6,388,536; U.S. 6,574,288; 6,741,846 (parent to this case); and U.S 6,760,575.

Double Patenting Rejection

The Office Action rejected the pending claims under grounds of obviousness type double patenting over U.S. 6,741,846. Applicant has concurrently filed a Terminal Disclaimer to obviate this rejection. Withdrawal of the rejection is respectfully requested.

Rejection of Claims 3-26

The Office Action rejected claims 3-26 as anticipated by U.S. 5,686,864 (Martin) or obvious over Martin in view of U.S. 4,484,153 (Borras). Applicant respectfully traverses these rejections.

Initially, it is noted that the Office Action argues that Borras discloses sample and hold circuitry being used to provide a plurality of different analog control signals for a controllable oscillator. However, contrary to this assertion, Borras appears to teach a single control signal being provided to the VCO 42 based upon signals from the phase detector 34 that are then passed through the loop filter 40. [*See* Borras, col. 5, lns. 1-3; FIG. 2.]

The Office Action argues that Martin discloses a controllable oscillator having an output signal dependent upon a plurality of different analog control signals. In particular, the Office Action points to element 112 in FIG. 1 and/or element 502 in FIG. 5 as being such a controllable oscillator. Looking in more detail at the teachings of Martin, however, the nature of element 112 and element 502 are different from these assertions in the Office Action.

Looking first to element 112 in FIG. 1, it is seen that this element is actually a plurality of individual VCO circuits that each receive an enable input and each receive the same control input (Vctrl) from the loop filter 110. Martin describes element 112 as follows: "[t]he plurality of VCO circuits 112 will also be referred to as a VCO array 112." [Martin, col. 2, lns. 16-17.] In addition, in operation, "[t]he VCO control circuit 114 begins an iteration of alternately enabling and disabling individual VCOs within the VCO array 112 in response to a trigger signal 115 generated from a trigger source (not shown), such as a controller." [Martin, col. 2, lns. 21-24.] Thus, with respect to element 112, in operation, only one of the VCOs will be enabled at any given time and that VCO will receive a **single** analog control signal, namely the Vctrl signal from loop filter 110.

Looking now to element 502 in FIG. 5, it is seen that this element represents a VCO that is described with respect to FIG. 6. In particular, Martin describes this element as "... a variable voltage controlled oscillator (VCO) 502 preferably having an N-bit band selection." [Martin, col. 5, lns. 48-49.] In operation, as discussed with respect to FIG. 6, capacitors 606 are selectively engaged by controlling switches 604 using the "N-bit binary outputs" from control circuit 114. [Martin, col. 5, ln. 62, to col. 6, ln. 6.] In addition to using the N-bit binary (*i.e.*, each bit either a "1" or a "0") band selection signal (SEL_1 ... SEL_N) to control switches 604, the output frequency of the VCO is also apparently adjusted using a **single** analog control signal, namely the Vctrl signal from loop filter 110, which is connected to control the capacitance of varactor diode 608.

In short, Martin discloses embodiments that rely upon a **single** analog control signal (Vctrl) that is provided by loop filter 110 based upon a single output **single** 108 generated by phase detector 104. In addition, Martin discloses the use of a single-bit (FIG. 1), or an N-bit (FIGS. 5-6), binary (*i.e.*, each bit either a "1" or a "0") band selection signal [*see* Martin, col. 6, lns. 2-6], as well as the use of a varactor diode 608 that is apparently has its capacitance controlled by the Vctrl signal [*see* Martin, FIG. 6].

In contrast, claim 3 requires a controllable oscillator having "an output frequency dependent upon a plurality of different analog control signals" that are received by the controllable oscillator as different frequency control input signals. Claim 3 also requires a phase detector that "concurrently provides a plurality of different analog output signals." And claim 3 requires a sample and hold circuit that samples and holds each of these different analog output signals to provide "the plurality of different analog control signals for the controllable oscillator." In short, as set forth in claim 3, the controllable

oscillator must be controlled by a **plurality** of different analog control signals, and both the phase detector and the sample-and-hold circuit are each required to provide **a plurality** of different output signals that are ultimately used to provide the different analog control signals to the controllable oscillator. Martin and Borras, therefore, whether taken alone or in combination, do not teach or suggest the limitations of claim 3.

Claim 12 requires in part a controllable oscillator having an output frequency dependent upon a **plurality** of different analog control signals, phase difference control circuitry configured to concurrently provide the **plurality** of different analog control signals, and a **plurality** of non-varactor diode capacitance circuits connected in parallel that are controlled by the plurality of different analog control signals. Martin and Borras, therefore, whether taken alone or in combination, do not teach or suggest the limitations of claim 12.

Claim 20 is a method claim that requires controlling an output frequency for a controllable oscillator utilizing a **plurality** of different analog control signals, detecting a phase difference to concurrently provide the **plurality** of different analog control signals as outputs, and utilizing a **plurality** of non-varactor diode capacitance circuits connected in parallel that are controlled by the plurality of different control signals. Martin and Borras, therefore, whether taken alone or in combination, do not teach or suggest the limitations of claim 20.

Based upon the remarks above, Applicants respectfully assert that Martin and Borras considered either alone or in combination do not teach or make obvious the limitations required by independent claims 3, 12 and 20, as well as their respective dependent claims 4-11, 13-29 and 21-26. Applicants respectfully request, therefore, that the claim rejections be withdrawn and an indication of allowability be provided.

Conclusion

In view of the foregoing, it is respectfully submitted that claims 3-26 are in condition for allowance. Accordingly, reconsideration of the pending claims is respectfully requested.

The Examiner is invited to contact the undersigned at the phone number indicated below with any questions or comments, or to otherwise facilitate expeditious and compact prosecution of the application.

Respectfully submitted,

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